REMARKS

The Office Action of June 15, 2004 has been carefully considered.

Claims 16 through 25 remain rejected under 35 USC 103(a) over Miyasato et al in view of ASM Vol. 15 Casting, and also over Shahani in view of ASM Vol. 15 Casting.

In paragraph 4 of the Office action, it has been alleged that the unexpected results cited in the prior Amendment are not commensurate in scope with the claimed invention. In particular, the Office action states that the results refer to the alloy AA 7050, which is not commensurate in scope with the instant claims, which are drawn to a heat treatable aluminum alloy product.

Applicant has now added a mew set of Claims 26 through 28, Claim 26 being directed to a product based upon the AA 7050 aluminum alloy. Claim 27 depends from Claim 26 and is directed to an as cast grain size between 270 and 600 microns, the range set forth in Table 2 of the specification, while Claim 28 depends from Claim 26 and is directed to a characteristic intercept distance up to 384 microns, as set forth in Table 5 of the specification.

Applicant submits that claims 26-28 are of a scope which is clearly commensurate with the unexpected results established in the specification.

The Office action alleges that it would have been obvious for one of ordinary skill in the art to add Ti and B to the alloy taught by Miyasato in order to obtain a finer grain structure within the claimed 270 to 800 microns as cast grain size, because ASM Vol. 15 teaches an overlapping as-cast grain size for AA 7050 that has added Ti and B or because the addition of the grain refiners Ti + B is a result effective variable.

LAW OFFICES
DENNISON, SCHULTZ, DOUGHERTY & MACDONALD
SUITE 105
1727 KING STREET
ALEXANDRIA, VIRGINIA 22314-2700
703 837-9600

The statement in the Office Action that it would have been obvious to add Ti and B to the alloy taught by Miyasato in order to obtain a *finer* grain structure is contrary to the teachings of the invention, which essentially calls for a coarser grain structure than has been known in the art. The Office action makes reference to page 477, column 3 of the ASM reference, which discloses two embodiments, one in which the alloy contains 0.05 to 0.15% Ti + 0.04% B, and a second, specifically cited in the Office Action, in which the alloy contains 0.01% to 0.08% Ti + 0.003% B. In the first case, the Ti/B ratio is between 0.8 and 3, and in the second case, the Ti/B ratio is between 3.3 and 26.7. The reliance of the Office Action on the second case is apparent from ASM Figure 68, a schematic drawing showing grain size versus Ti/B ratio for several Al alloys.

For alloys where there is a grain size minimum, such as the AA3004 alloy and the 99.7% Al alloy, a Ti/B ratio of about 3 (the first case) is used to obtain the minimum grain size. Where there is no minimum grain size, such as the AA7050 alloy, the second case on page 477 is applicable to reduce grain size, which is decreased continuously as Ti/B is increased. However, the AA7050 alloy with a Ti/B ratio between 3.3 and 26.7 results in a grain size well below 300 microns, on the order of about 260 microns maximum. Thus, the ASM document taken as a whole does not teach exceeding a grain size greater than about 260 microns.

Moreover, as has been previously noted, the ASM document contains a clear teaching that the desired grain size is generally 200 microns or finer in certain cases, which does not encourage one of ordinary skill in the art to choose a Ti/B ratio (the only parameter that acts on grain size according to ASM) such that a coarse grain size is obtained,

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DENNISON, SCHULTZ, DOUGHERTY & MACDONALD
SUITE 105
1727 KING STREET
ALEXANDRIA, VIRGINIA 22314-2700
703 837-9600

as is presently claimed.

Withdrawal of these rejections is accordingly requested.

In view of the foregoing amendments and remarks, Applicant submits that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,

Ira J. Schultz
Registration No. 28666

LAW OFFICES
DENNISON, SCHULTZ, DOUGHERTY & MACDONALD
SUITE 105
1727 KING STREET
ALEXANDRIA, VIRGINIA 22314-2700
703 837-9600